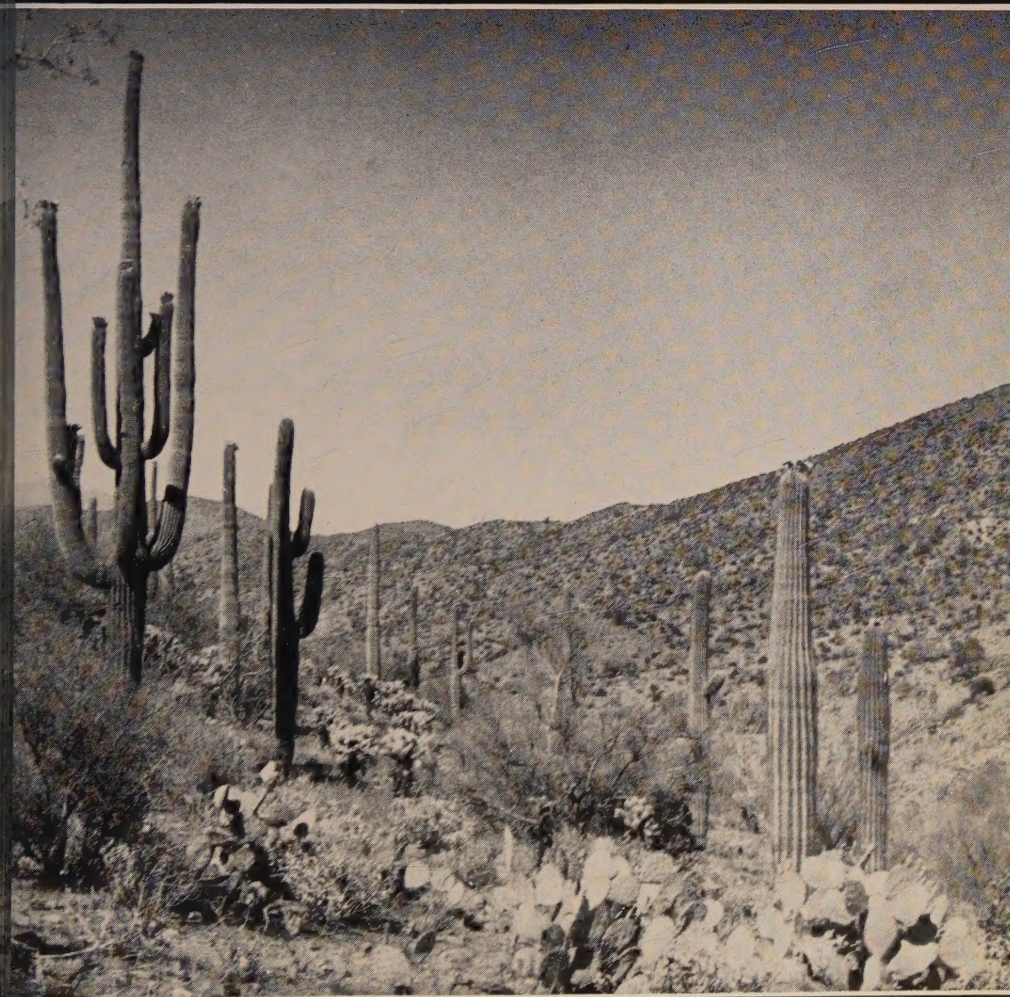


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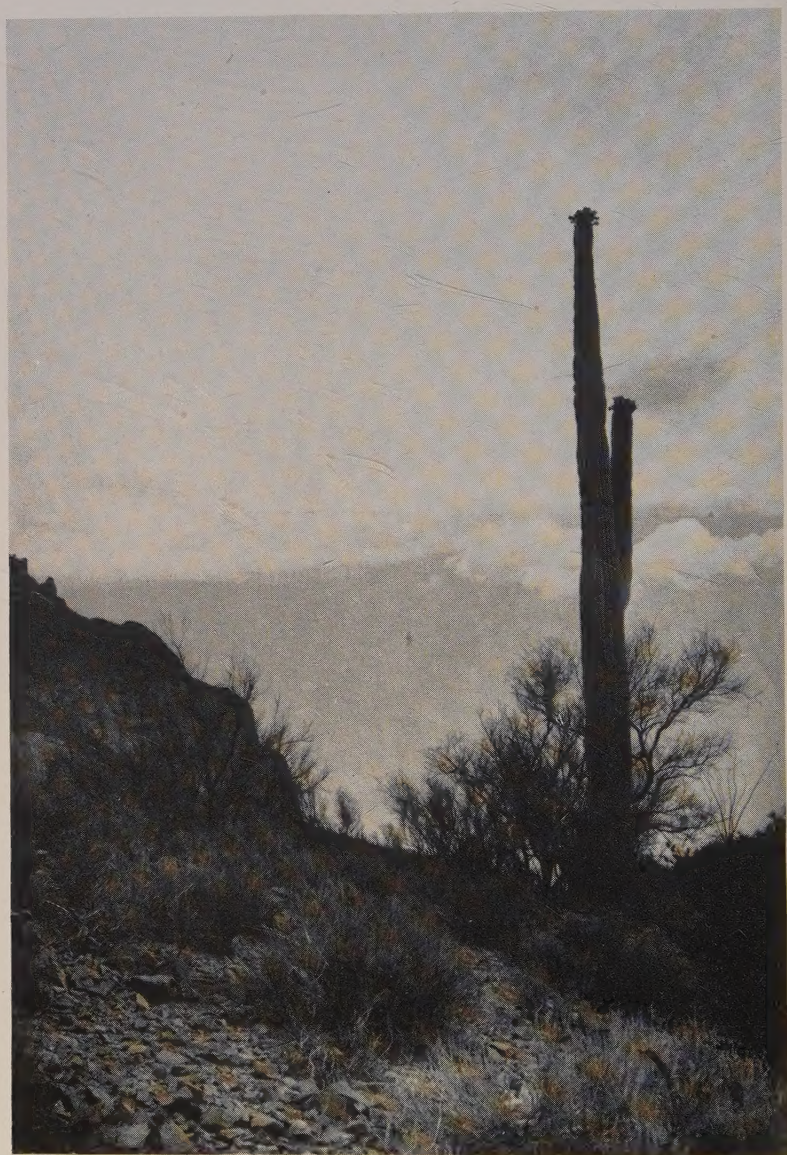
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In Saguaro Land

*An account of the Offield-Beaty Expedition
of the Chicago Academy of Sciences
May-June, 1940*

HOWARD K. GLOYD

AFTER the late William Boyce Thompson had established in Yonkers, New York, the institute for botanical research which bears his name, he desired to make a lasting contribution to the well-being of the region in which he had worked and earned his fortune. Realizing the difficulties which beset agriculture in the arid Southwest, and appreciating the need for practical knowledge of desert and grass-land plants, he founded and endowed the Boyce Thompson Southwestern Arboretum in 1924 on land adjacent to his winter home near Superior, Arizona. In 1934 Fred Gibson, formerly plant pathologist at the University of Arizona, was appointed director to further a program devoted to the study of arid-land plants, both exotic and native to Arizona. The Arboretum was the headquarters of the field party from the Academy from May 11 to June 3, and Mr. Gibson was our cordial host.

Prosaically, our objectives were to continue faunistic studies already in progress, to make colored motion pictures of desert wild life, and to augment the study collections of the Academy's museum. But with some of us, at least, there was a very real desire to reëxperience the beauty and charm of the desert wonderland: the scent of huisache after a shower; the pungent aroma of the turpentine bush stirred up by our boots; the soft greens and browns of the desert vegetation, splashed here and there with the flaming torch of the ocotillo, or gently interrupted by the chaste whiteness of the blossoming yucca; the extravagant glory of sunsets across the desert plain; the whirring call of ubiquitous cactus wrens; the smug reiterations of white-winged doves; and even the scorching heat of the sun on lava rocks. The magic of the desert, once experienced, leaves an attar in the blood!

This expedition was made possible by the generosity of James R. Offield, a trustee, and John Y. Beaty, a member, of the Academy. Other members of the Board of Trustees and Board of Scientific Governors* contributed to the cost of Kodachrome film, making it possible to photograph a gratifying variety of natural history subjects: birds, mammals, reptiles, amphibians, insects, spiders, and many other invertebrates. The interest shown by these men in supporting this type of field

*Henry B. Babson, F. R. Dickinson, Dr. James P. Simonds, Dr. John R. Ball, Eugene H. Garnett, and Tappan Gregory.

work is sincerely appreciated by the officers of the Academy and members of the museum staff.

Members of the field party were Earl G. Wright, motion picture photographer and ornithologist; Thurston I. Wright, who collected mammals, Donald C. Lowrie, who collected spiders, insects, and other invertebrates; and the writer, who concerned himself chiefly with reptiles and amphibians. Traveling in two automobiles, the party reached Superior and the Arboretum on May 11. Mr. and Mrs. Beaty joined us at the Arboretum on May 27 and shared in our various activities until June 1 when they continued their trip to the West Coast.

We were given sumptuous living quarters in the guest house of the Arboretum. It is equipped with all necessities and conveniences, including electric refrigeration which we regarded as a highly appreciated luxury in the field. We were provided with working space in the laboratory of the main building and allowed the use of the photographic dark room. Mr. Gibson and his assistants, Ben Vanderhoof and Nunley Stone, spared no pains to make us comfortable and to provide every possible facility for our work. They gave us much useful information on the history of the region, its flora and fauna, climate and topography. They told Mr. Wright of bird nests that they had found, brought us specimens of insects, lizards, and snakes, and assisted us in so many useful ways that we felt embarrassed with riches. This was one "expedition," we agreed, about which the "intrepid scientists" could not boast of "hardships" overcome by "courageous endurance"!

THE ARBORETUM AND VICINITY

In the northern edge of the Saguaro Country, four miles west of the mining town of Superior on U. S. Highways No. 60 and 70, Picket Post Mountain stands apart from other highlands of the central plateau of Arizona. In early territorial days it was used as a signal point by a small military detachment to which its name alludes. At its eastern base the Arboretum, some 1700 acres in area, nestles in a little valley where the usually dry stream beds from Arnett Cañon and Telegraph Cañon converge and continue into Queen Creek. On a cliff separated from the mountain by Queen Creek Cañon is Picket Post House, the former winter home of Colonel Thompson.

In addition to the natural vegetation of the area, many exotic forms of shrubs, trees, and smaller plants have been introduced. These range from the well known eucalyptus and various citrus fruits to the almost unbelievably bizarre "boojum trees" from Mexico. The cactus garden, one of the most outstanding features of the Arboretum, contains literally hundreds of species. Among the native desert trees and woody shrubs abundantly represented are mesquite, acacias, cat claws, palo



Gateway to the Boyce Thompson Southwestern Arboretum
Picket Post Mountain in background.



The guest house at the Arboretum.



Picket Post House, the former winter home of the late Colonel Thompson.

verde, ironweed, desert willow, ocotillo, and creosote bush. Agaves, yuccas and sotols are also conspicuous. There are also experimental plots of grains and range grasses and enclosures protected from the sun by lathwork under which grow thousands of less robust seedlings of potential economic value. A concrete represo thrown across a rocky cove produces a small lake furnishing water for irrigating the plants that require it and, incidentally, a habitat for a few ducks, coots, fishes, and musk turtles. This wealth of xerophytic vegetation, concentrated in a small area and with representatives of the various species carefully labeled, is virtually a living herbarium, an ideal spot for the student of arid-land botany. Animal life is abundant too, but of that more anon.

Surrounded by hills and low mountains, Superior lies just inside the southern edge of the central plateau. Its elevation is 2,730 feet above mean sea level and that of the Arboretum, four miles to the west, is approximately 2,500 feet. Approaching from the east, the highway winds down Queen Creek Cañon, losing nearly a thousand feet in elevation in the course of twelve or fifteen miles, and one begins to see the saguaro, the giant cactus for which Arizona is famous, on the steep arid slopes a few miles above the town. The cañon widens into a valley through which the stream bed wanders until it is lost in the desert plain some twelve miles to the west.

On the basis of the natural vegetation the valley of Queen Creek may be regarded as a marginal extension of the Sonoran Desert of south-

central Arizona, a saguaro-ocotillo association. The saguaro, or giant cactus (*Carnegiea gigantea*), exceeding a height of forty feet in some instances, dominates the landscape, especially on the rocky hillsides which it shares with the "teddy-bear" cholla (*Opuntia bigelovii*) and the woody ocotillo (*Fouquieria splendens*). Other conspicuous cacti are the jumping cholla (*Opuntia fulgida*), the barrel cactus or bisnaga

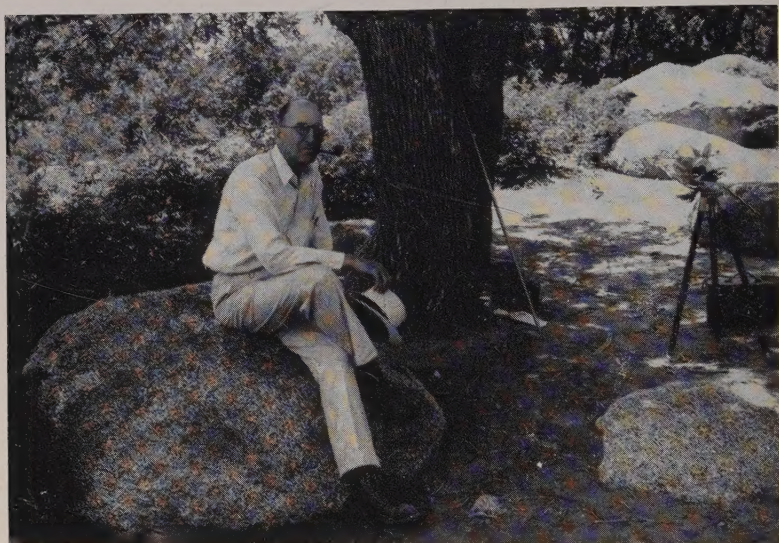


Ocotillo, cholla, and saguaro near the Arboretum.

(*Ferocactus lecontei*), and the many prickly pears. The palo verde (*Parkinsonia*), mesquite (*Prosopis*), ironwood or palo fierro (*Olneya*), and cat claws (*Acacia*) are the dominant trees.

On the day of our arrival the maximum temperature was 96° and three days later (May 14) it reached 103°, the highest recorded during our stay. The minimum temperature ranged from 58° to 77° between May 11 and June 2. These records made under standard conditions do not suggest, perhaps, the intense heat of the day or the

quick drop in temperature at sundown characteristic of desert regions. In a thermometer left in direct sunlight for a few moments the mercury quickly rushed to 120°. A comforting factor which makes the desert heat less difficult to endure is the cooling effect of evaporation. There is nearly always a breeze, and often a wind; any slight shade gives surprising relief.



Fred Gibson, Director of the Arboretum.

The weather during our stay was fairly uniform. For the most part the sky was clear, but scattered light showers fell on May 16, 17 and 18. We anxiously watched the skies and hoped for a heavy rain which would cause greater activity among the amphibians and reptiles and increase our chances of collecting some of the less common species. Knowing that the summer rains of this region usually come in July, we had no real expectation of such luck, but we could not avoid indulgence in wishful thinking. The early appearance of seasonal rains would have been welcomed by everyone for the vegetation was obviously suffering. Mr. Gibson told us that the three preceding seasons had been unusually dry.

BIRDS OF THE DESERT

Since the Arboretum is a wild life refuge on which there is no shooting, it is an ideal spot for the nature photographer. Earl Wright quickly located nests and feeding places of birds and set up blinds of canvas and burlap to conceal himself and the movie camera, moving from one

to another according to changes in the direction of light or in the activities of his subjects. He spent many hours in these shelters, shut off from the breeze and dripping with perspiration, doubtless speculating upon the origin of the Turkish bath as well as the probable outcome of his pictures. There was such a wealth of bird life at hand that it was impossible to follow up all the opportunities for securing photographs

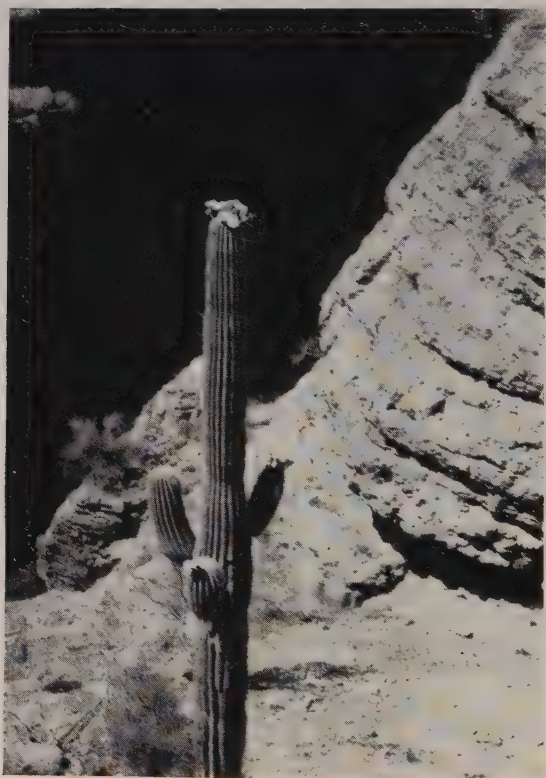


**A corner of the cactus garden. The "boojum tree"
in center foreground.**

and making a choice was often difficult. The activities of a family of cactus woodpeckers at the nest entrance on the underside of a sloping palo verde could be filmed only when the sunlight came from a certain angle. Phainopeplas feeding on elderberries persisted in staying in the shadows but a hooded oriole perched upon a lone branch was caught by the lens, a spot of flame against a dazzling sky.

Nests of hummingbirds were numerous. One, saddled to a water pipe close beneath the roof of a lathwork shed, did not lend itself to photographing, but we watched the young grow day by day until they overflowed this tiny cradle. The adults fed often from the blossoms of an agave just outside the laboratory door. The nest of a broad-tailed hummer in a palo verde was more easily visible. Here the brooding and feeding of the young were photographed and Mr. Wright was at hand when the fledglings took off in what may have been their first flight. Quite without fear, one of them probed with long exploring tongue, the depths of a flower held in Ben Vanderhoof's hand.

The Gila woodpeckers, which chisel out cavities in the heart of the saguaros as our flickers drill into telephone poles, were frequently seen, and more than half of the giant cacti bore evidence of their work. The sap of the saguaros, exuding as the bird enlarges the cavity, hardens and forms a gourd-like test which persists even after the death and disintegration of the cactus. When the nest of the woodpecker is abandoned, the cavities are often appropriated by elf owls and flycatchers.



The saguaro is the state flower of Arizona.

The diminutive verdin, with its yellow face and chestnut shoulder, one of the commonest and most characteristic desert birds, might easily be overlooked if it were not for the abundance and conspicuousness of its nests. Intricate globular masses of twigs, thorns and grasses, woven among the outermost twigs of thorny trees, these nests often have the entrance through a slanting neck at the side. Like the cactus wren, the verdin builds dummy nests for roosting and winter shelter.



Nest of western red-tailed hawk (*Buteo borealis calurus*)
in desert west of Picket Post Mountain.

A FAMILY OF BUTEOS

One of the most outstanding achievements of our photographer is the record of a series of episodes in the nest life of the western red-tailed hawk. The home of the Buteos was a sturdy cradle of sticks in the spiny arms of a patriarchal saguaro. When we first made the acquaintance of Buteo Junior and his baby brother (or maybe sister!), they had passed the creeping stage and were beginning to walk around the house with their heels off the floor. Their fuzzy white pajamas were becoming too short in the sleeves and dark, awkward-looking feathers which would one day carry them high above the saguaros' crowns had begun to appear. When not resting between their periods of exercise they paced around the edge of their tangible world, peering into other worlds they soon would know, or scanning the blue above for a glimpse of Father Buteo returning with another rabbit skin. While the camera watched, he came. Not a rabbit but a mouse. The camera whirled. Father placed it at Junior's feet and Junior did the rest. Baby brother looked on with apathy: it was not his turn.—But Mr. Wright sometime must tell the details of this story.



Mr. Beaty examines the complicated root system of a mesquite tree exposed by erosion.

BIRD VERSUS SNAKE

Curve-billed thrashers nested in the very heart of a jumping cholla. Accessible only by running a gauntlet of millions of fiery lancelets, a marauding snake or human hand would pay dearly for crossing this threshold. A safer place for eggs and offspring could scarcely be imagined.

From the veranda of the guest house about supper time one evening we witnessed an amusing little episode which would have been highly interesting on a movie film had the light been suitable for recording it. Moving unobtrusively across "our front yard" just inside the fine meshed fence, and apparently attending to his own affairs, was a five-foot bull snake. Clucking an excited alarm, a curve-billed thrasher—presumably the one with a nest in the nearby cholla—flew to the ground and attacked him from the rear. She pecked him savagely on the tail, and following behind, pecked again. When the snake pulled up his tail and looked back in surprise, the thrasher turned nonchalantly away and busied herself scratching about the ground as if in search of something! As the snake continued his journey the thrasher renewed her attack. This behavior was repeated several times until at last the bull snake reached the shelter of a low bush in the corner of

the yard. With what seemed to us a triumphant chuckle, the thrasher then retired from the scene, apparently assuming that the threat to her precious nestlings had passed.

Those who believe the ancient fallacy that snakes have the power to "charm" their prey, or their enemies, might have difficulty in explaining this. The bird was the aggressor, and the bewildered snake was put to flight. Perhaps the true explanation of the serpent's insidious power to "charm" is that he is just a hungry opportunist and occasionally manages to capture an overzealously unwary bird attempting to lure or drive him away from her nest.

Although our success with photography was gratifying, we missed some of the things we wanted especially to record on film. The vermilion flycatchers, for example, had finished nesting and were infrequently seen; the behavior of the phainopeplas was perverse; and the road-runners eluded us again. Another time perhaps will bring these coveted opportunities.

MAMMALS

Of the larger mammals we saw very little. A rock pile in the ravine at the base of Picket Post House sheltered a den of gray foxes. The cubs sometimes played in the open but gave us little opportunity for observation. We had occasional glimpses of the adults, but our efforts to make pictures near the den were unsuccessful. We neither saw nor heard coyotes during our stay at the Arboretum.

Although small mammals were plentiful, they were not as abundant as we found them in the Wickenburg area in 1937. Several species of bats, including the long-eared desert bat (*Antrozous pallidus*), were taken in small numbers. Caverns in the vicinity of the Arboretum and in Queen Creek Cañon were investigated, but no roosting colonies were found.

With bushy tail erect, the little antelope ground squirrel (*Citellus leucurus*) was commonly seen throughout the day. Skipping about among the rocks (never has he heard of "the hot-foot"!) he is as typical of the desert as the cactus wren or Gambel's quail. Keeping at a safe distance, he pauses occasionally to give an intruder the once-over, whistles a soft trill of alarm—or is it a salute?—and then disappears behind a boulder. The rock squirrel (*Otospermophilus grammurus*), which we frequently saw in the mountains and foothills, exhibits no such curiosity but precipitantly takes to cover at once as if adjured to stand not upon the order of his going.

Trap lines set out and carefully tended by Thurston Wright yielded pocket mice of two species, white-footed mice, ground squirrels, chip-

munks, and occasional wood rats which, together with the miscellaneous specimens of bats, rock squirrels, rabbits, and birds collected by other means, kept him busy skinning during the major portion of the day.



The wood rat or "pack rat," a common desert mammal.

The "houses" of the wood rat (*Neotoma albigula*)—piles of cactus joints, sticks, bones, pebbles, cow-chips, and nondescript debris of all kinds—were conspicuous throughout the desert valleys, plains, and foothills. The nests proper, composed of fine grasses and less harsh vegetation, are deep in the midst of the pile. In houses that are in active use there is a "storeroom" of food: cactus flowers and fruit, roots, grasses, seeds, etc. Since the rat houses also furnish shelter for other animals such as insects, arachnids, lizards, and snakes, they repay investigation by the collector. Accordingly, we spent a few hours on several occasions in digging out some of the rat nests near the Arboretum and in Alamo Cañon on the west side of Picket Post Mountain. While two of us attacked a house with hooks or rakes, two others stood by ready for whatever might be uncovered. Not only did we collect rats more easily in this way than by trapping, but also we found many other desirable specimens. Rattlesnakes and gopher snakes were occasionally turned up, and a large desert lizard (*Sceloporus magister*) was commonly found.

(To be concluded)

Birds of an Hungarian Lake

MARGARET MORSE NICE

Illustrated by Joost ter Pelkwyk

The Royal Hungarian Ornithological Institute in Budapest is truly a bird institute; on my visit there in 1938 I found that a pair of barn swallows (*Hirundo rustica*) had built a nest on a chandelier in one of the rooms and were flying in and out of the open window with food for their young! The Institute is one of the pioneers in banding birds, having started this work under the leadership of the director, Dr. James Schenk, as long ago as 1903.

The ornithologists of the Institute had arranged a two day stay for me at Lake Velence, an hour's distance from Budapest. On June 23 Dr. Schenk and I took the train to Dinnyès, the village by the lake. Here we were met by Yuri, our tall guide, and accompanied him to his boat. We took our places on the seat in the center, while Yuri stood aft to pole, but first we each had a drink of white wine. "So Yuri will pole more diligently," said Dr. Schenk. And then we started on our journey through the great reed beds.

Some open spaces were bright with a little yellow pea-like flower dotting the surface, and others were colored orange by a handsome chara growing under water. Occasionally we came upon purple nightshade among the reeds. Immense snails (*Paludina vivipara*), two to three inches long, appeared to be the most abundant inhabitants of the lake. Brilliant damsel flies, the males shimmering blue, the females pale green, darted over the water, as did occasional gorgeous red dragon flies. Happily enough we did not meet a single mosquito.

Our boat followed narrow, straight channels through the mass of reeds, channels made by fishermen for the capture of carp; the exits were covered under water with nets. At frequent intervals the fishermen had broken over the reeds some three feet above water to make supports for drying their nets. Under the shelter of these "varsababa" many small birds nested. We had heard the great reed warbler (*Acrocephalus arundinaceus*) as we started and soon afterwards the grasshopper-like trill of Savi's warbler (*Locustella luscinioides*), as well as the songs of the reed bunting (*Emberiza schoeniclus stresemanni*) and the little reed warbler (*Acrocephalus streperus*). The most constant singer was the moustached warbler (*Calamodrus melanopogon*), that gave an energetic, varied performance with occasional phrases resembling those of a nightingale. None of these songs was high in the musical order, but all were likeable and all seemed fitting to the spirit of the reed beds. Kind Dr. Schenk did not tire of mentioning the name of each singer again and again—a great help to me in my inexperience.

We soon began to find nests, mostly empty. There was one each of great and little reed warbler, and many of *melanopogon*, some old, one with four eggs, one brand new, its materials still green, and finally one with four babies. Dr. Schenk banded these with large bands which he lapped over, saying they had many more returns from larger bands than small ones, since the latter were so difficult to read. The inscription on one ring read "Budapest Ornith 121262."



Bearded Tit

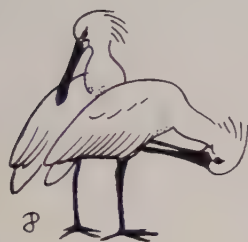
The most abundant nests were those of the lovely bearded tit (*Panurus biarmicus russicus*), a whitish and buff-colored, long-tailed bird with a pleasant metallic note. The nests were deep with ample foundations of leaves of reeds and lined with feathers and plumes of reeds. It was evident that we had come between broods, for all the nests that we found this morning were empty or contained only two or three eggs.

We came upon torn-out reeds, the work of muskrats. This American animal escaped some twenty years ago from a game farm in Bohemia and has since spread over much of Europe. It burrows into dikes and ditches and causes wrecks of trains and automobiles, and its fur has deteriorated so as to be of no value! "A very harmful beast," said Dr. Schenk.

Yuri backed the boat into the reeds and showed us a nest with seven big brown eggs, while the parent little crane (*Porzana parva*) scolded *jip jip*. Some twenty black terns (*Chlidonias nigra*) made a tremendous commotion as we cruised about their nesting colony discovering nests with one or two great dark eggs. Again Yuri stopped the boat; he handed us the most ridiculous baby little bittern (*Ixobrychus minutus*). A gawky, buff-colored creature with great eyes and immense yellow feet, it sat on its haunches and pointed its bill to the sky.

It had now grown hot on the lake and we were glad to return to land and walk to the village. To my delight I found that Dinnyès

boasted two stork (*Ciconia ciconia*) nests, one of them new this year. The three solemn black and white babies on the roof of the mill appeared about half grown. Flocks of white ducks and geese were standing by the shallow pond. Little girls called, "I kiss your hand," and Dr. Schenk answered, "God give you good day."



Spoonbill



Stork

Yuri's house, like all the others, was low, white, thick-walled and covered with a thatched roof. The north door led into the kitchen, from which one entered the family bedroom; the south door led into a supplementary kitchen and from there into the guest room in which I was to stay. The middle door opened directly into the bedroom of five cows, two calves and a bull. Dr. Schenk and I had dinner on a little table in my room and made plans for the rest of my stay. Since he had to return to Budapest early in the afternoon and Dr. Koloman Warga, assistant at the Institute, would not arrive until 9:00 the next morning, it was necessary to give instructions to my hosts. He and I communicated in English and German, whereupon would ensue animated conversations in Hungarian between him and the *Hausfrau*, with a translation for my benefit.

"No, thank you, I do not care for beer. White wine and mineral water would be better."

"No, indeed, I do not wish rum in my tea!"

"Pure tea would suit me very well."

Late that afternoon Yuri and I started out to search for a bluethroat. We were silent partners, our conversation limited to a few exclamations on his part when he wished to show me birds, and a few requests on mine that he write the name of some new bird in my note book for later translation by Dr. Warga. A bird flew up from some weeds; Yuri searched about and motioned for me to come. "Reed hunting," he said, pointing to the nest with three large young. I wished his one English bird name had been of something I did not already know the name.

We walked over the village goose pasture, and then across a dry treeless plain, seeing flowers familiar in America, thistles and yarrow and St. John's wort. Flocks of young starlings (*Sturnus vulgaris*) and gorgeous lapwings (*Vanellus vanellus*) flew past. At last we came to a boat and pushed off into another reedy lake. Herons rose with loud quarks, and mallard (*Anas platyrhynchos*) mothers splashed away feigning injury. The main body of open water showed a wonderful array of bird life—common and white-eyed pochards (*Nyroca ferina* and *feruginea*), coots (*Fulica atra*), crested and red-throated grebes (*Podiceps cristata* and *griseigena*) on the water, black terns and barn swallows skimming over the surface, and lapwings and snipe (*Capella gallinago*) on the shore. On the far side of the lake we landed, borrowing another boat to cross a drainage ditch to a field of sedge. Red-shanks (*Tringa totanus*) screamed in protest at our approach; little reed warblers sang in the air, and a handsome yellow wagtail (*Motacilla flava*) called *tsip* from a weed.

"Kickbagg," said Yuri, pointing, and there was a bird I had long hoped to see, the beautiful little bluethroat (*Luscinia svecica cyane-cula*). With his scintillating blue throat bordered with red, and his brown tail spread, he sang with all his might, sometimes in his exuberance flying straight up into the air. It was a varied, pretty, happy melody, making me think of a mockingbird's on a small scale, that is, the mockingbird's own song, not his imitations. All in all, I quite lost my heart to the bluethroat.

In the distance I noted what I took to be flocks of sheep, which, strangely enough had not yet been shorn at this late date. Examination with the binoculars showed, however, that they were large grey pigs, attended by swineherds and their dogs. Off to the right was a herd of cows watched by a cowherd on horseback. But the chief point of interest in the landscape lay in a long stretch of white—some eighty spoonbills (*Platalca leucorodia*) resting on the plain. These great white birds with their extraordinary bills were a fascinating sight.

Despite much searching, Yuri found no nests, but a flock of greylag geese (*Anser anser*) in flight was rewarding. We started to push home through the reeds, scaring a muskrat from our path. A crested grebe preened its remarkable self, then joined its striped-necked half grown child; the parent flew at our approach, the young dove into the water.

The trip home was a memorable experience in the cool evening with the long shadows over the water—the chorus of *melanopogons*, the strange sad call of the lapwings, and the throngs of mallards flying against the gold and rose of the sunset sky. As we walked back over the plain there arose on every side the happy songs of the tireless skylarks (*Alauda arvensis*).

The next morning the large, smiling *Hausfrau* came in, inquiring

in pantomime as to how I had slept. Every one was so friendly and talked so earnestly in Hungarian that I felt most ignorant and rude to think that I could not even say "Good day" or Thank you." I answered them in German, feeling that since it was a foreign language to me, it ought to be less foreign to them than English. This was true of Yuri's sister, who understood and spoke a little German, but I soon discovered it was very little. They brought me tea and rolls and three eggs for breakfast, and then appeared to be inquiring what I would like for picnic lunch. They produced an Anglo-Magyar phrase book and I started to hunt for something appropriate. "Your father is sitting in his two rooms" did not seem much to the point; even less helpful was: "Are you sure you love me very much? Which is the way to the marriage bureau?" So I said the German word for "egg" and let it go at that.



Loud squeals came from an outhouse made of reeds; upon investigation I found that Hungarian pigs did look woolly; they had long noses, large ears and long coarse hair, while one of them had the fanciest curls all over her back. By the goose pond an old man with a whip was watching two sows and their offspring. Flocks of geese, mostly white but some with splotches of grey, marched to the pond, talking the same language and using the same greeting ceremonies as the pure greylags I had known at Dr. Konrad Lorenz's home in Altenberg, Austria. The birds around the village were house and tree sparrows (*Passer domesticus* and *montanus*), barn swallows and pied wagtails (*Motacilla alba*), while a little outside were crested larks (*Galerida cristata*) and corn buntings (*Emberiza calandra*).

I was glad to welcome Dr. Wurga who has done splendid work in banding, both of water birds at Kish-Balaton and of box-nesting birds in the garden of the Institute. Together with Yuri we proceeded to the main lake and traversed some of the route of the previous morning. A cool wind was blowing and the birds were silent for the most part. Channels grew narrower and more choked and Yuri had desperate struggles to push the boat along. Finally we came to the place where the wading was to begin. I pulled the trousers lent me by Yuri over

my slacks and changed my shoes for a pair of his; Dr. Warga made sure that his pencil, note book, bands and other paraphernalia were securely tied to his clothes and we were off. I cheerfully started to follow Yuri, only to find myself sunk to the knees at the second step. Yuri hauled me out and after that I noted that the trick was to step sideways on the reeds and thus provide oneself with some support. The water was not cold and most of the wading was not over a foot deep, but occasionally both Dr. Warga and I slipped into holes. Yuri, however, was skilful as a heron and sped over the reeds without mishap.

Overhead flapped grey and purple herons (*Ardea cinerea* and *purpurea*) and an occasional great egret (*Egretta alba*), while majestic spoonbills sailed around with outstretched necks. A marsh harrier (*Circus aeruginus*) objected to our presence with a note that well matched the reedy, frog-like songs of the small marsh birds.

Yuri called us and we hurried as best we could to his side: there on a great heap of dead reeds stood three gorgeous white birds with extraordinary paddle-shaped bills—my first view of a spoonbill's nest. With a quick movement Yuri seized their legs and Dr. Warga banded them. I was surprised to learn that the nest was not built on an old foundation, but was made new each year. Other spoonbill nests were found by Yuri, as well as several grey herons, that also were heaps some two and a half feet in height. Frequently upon our arrival the young started to leave, but Yuri was skilled in retrieving them for our benefit. From his long experience at Kish-Balaton, Dr. Warga told us the approximate age of each bird he banded.

Happily the sky was overcast and the air cool; nevertheless, I was not sorry when we splashed and tumbled our way back to the boat and pushed off to find a clean place to wash our hands and a good position from which to watch a *melanopogon*—so often heard and so seldom seen. From the lunch basket Yuri took his modest share, the rest belonging to me. Dr. Warga gave me cheese and lemonade and accepted some of the delicacies I pressed upon him, a bit of smoked ham and wine and cake. The rest of my lunch consisted of thick slices of black bread and no less than *seven* semi-hard-boiled eggs! Our morning conversation had borne fruit. Not even Yuri could do justice to such a clutch.

The boat started once more on its laborious way and soon we were again plodding over the reeds. Now Yuri showed us purple heron nests; these were about the same height above the water as those of the grey herons, but were simple nests placed more or less on top of the reeds instead of being solid mounds. The young birds were gaily colored, the skin green and the feathers reddish brown.

Two years previously the first pair of great egrets had nested at Lake Velence; their three young had been banded by Dr. Warga. The

next year there was only one bird. This year there were two pairs and Yuri led us to one of the nests in which were two young of about ten and twelve days, odd-looking creatures, their green skin covered with white down. The larger one struck continually at us, while both were vociferous with shrill squeaks and harsh cries. Dr. Warga took careful measurements of the height and size of nests, and of many fine points in the anatomy of the young birds, only regretting that he had not brought his scales.



Purple Heron

The nest of the other pair, he said, should be found within thirty meters of this one. We all started to search and by following shrill cries soon came upon our expected nest with two young that from looks and actions appeared to be of practically the same age as those at the first nest.

On the way home we found a bearded tit's nest with five of the sweetest, fluffiest babies, the general color buff with a dark line through the eye. These were banded and carefully tucked back into the nest with a piece of folded reed laid on top. This is a scheme Dr. Warga has in dealing with young almost ready to leave the nest; it prevents the young from scattering prematurely, and when the parents return they remove the cover.

The genial *Hausfrau* had a supper of delicious fried chicken waiting for us, and her little granddaughter gave me a bouquet of madonna lilies and roses. Too soon we had to hurry off to catch the train for Budapest, regretfully leaving the wealth of bird life among the reeds of Lake Velence.

—5708 Kenwood Avenue, Chicago, Illinois.



Austin J. Lindstrom

Moffett Studio

Austin J. Lindstrom

(1881-1940)

In the death of Austin J. Lindstrom—for twenty years a trustee and treasurer of The Chicago Academy of Sciences—the institution has sustained a very great loss. The demands on his time and constant attention made by the great banking organization of which he was a part, and the numerous claims which other interests made on him, were never too many or too pressing to interfere with the devoted service which he willingly and cheerfully rendered the Academy. Until he was prevented by severe illness, during the last twelve months, from attending to business matters he was rarely absent from the meeting of the Board of Trustees and its executive committee and in the interims between these meetings he gave much time and attention to his duties in connection with the investments and finances of the Academy.

Austin Lindstrom was one of those fortunate individuals who find life absorbingly interesting and spread a wholesome atmosphere because of their genius for friendship. His smile and his handclasp were never perfunctory and his unaffected and courteous manner reflected at once the gentle man and the gentleman. His philosophy of life was based on strong religious convictions and his active participation in the local and national affairs of the Protestant Episcopal Church had constituted him one of its leading laymen.

He was born in Moline, Illinois, October 26, 1881, entered the banking business as a young man and, after serving as a bank-officer in Nebraska and in Rock Island, came to Chicago in the year 1918 as an officer of the State Bank of Chicago which, through mergers, became in 1931 an integral part of the First National Bank of Chicago, of which Mr. Lindstrom was an assistant vice-president. His home was in Evanston and he passed away at the Evanston Hospital on July 10, 1940.

In the year 1905 he married Esteline Martindale of Niobrara, Nebraska, who—with one son and one daughter—survives to cherish his memory.

He was a member of the Bankers Club, the Swedish Club, the Westmoreland Country Club as well as a member and former president of the Church Club of Chicago. Among his most intimate friends was Bishop George Craig Stewart with whom he had collaborated for years and who preceded him in death by only a few weeks.

The officers and staff, the trustees and scientific governors, and all members of the Academy who knew him mourn the loss of this honorable and useful citizen.

—Henry S. Henschen.

MUSEUM ACTIVITIES



Sunday Afternoon Lectures at the Academy

The following lectures, free to the public at three o'clock on Sunday afternoons, are announced for the months of November and December. The doors of the Auditorium are opened at 2:45 and closed at 3:00 or before if the hall is filled. A section is reserved for members until three o'clock.

Nov. 3: What is a Mushroom? DR. VERNE O. GRAHAM, Secretary, Chicago Academy of Sciences. A well-known authority on mushrooms tells about an interesting group of plants pointing out some of the differences between poisonous and edible forms.

Nov. 10: Birds of the Arid Southwest, EARL G. WRIGHT, Curator of Exhibits, Chicago Academy of Sciences. Mr. Wright describes the bird life of Arizona deserts and mountains. Illustrated by kodachrome movies taken by the Offield-Beaty Expedition of the Chicago Academy of Sciences.

Nov. 17: The Customs of a West African Tribe, DR. WILLIAM R. BASCOM, Department of Anthropology, Northwestern University. Dr. Bascom, who lived for a year with the Yoruba tribe in Nigeria, tells of their strange tribal customs.

Nov. 24: Land Classification in the United States, DR. G. DONALD HUDSON, Department of Geology, Northwestern University. A well known geographer discusses currently important problems in the use of land.

Dec. 1: Reptiles of the Arid Southwest, DR. HOWARD K. GLOYD, Director,

Chicago Academy of Sciences. A discussion of the habits of desert reptiles, illustrated by kodachrome slides and motion pictures from the Offield-Beaty Expedition.

Dec. 8: Of Termites and Men, DR. ALFRED EMERSON, Department of Zoology, University of Chicago. One of the foremost students of termites in the world compares the highly developed social order of these insects with that of man.

Dec. 15: Invertebrates of the Arid Southwest, DONALD C. LOWRIE, Assistant Curator, Chicago Academy of Sciences. The invertebrate fauna of Arizona is richer and more varied than one might expect. Mr. Lowrie's talk is illustrated with unusual kodachrome slides and motion pictures from the Offield-Beaty Expedition.

Exhibits

The current exhibits in the lobby of the Museum represent several different phases of natural history. A display of the common mushrooms of the Chicago Region is of particular interest to those who enjoy the study of this group of plants. A selection of specimens from the collections made in Arizona by the Offield-Beaty Expedition last May shows how animals are prepared for scientific studies and several photographs indicate the nature of the country in which the field work was carried on.

An exhibit of beetles and equipment for collecting them, prepared by William E. Menzel of E. H. Sargent and Company, is attracting much attention. Some of the tools which Mr.

Menzel has developed for collecting coleoptera will interest both amateur and professional entomologists.

A colorful display of semi-precious stones cut and polished by A. J. Nisbet in the Chicago Parks Lapidary Shop is also on view. These beautiful stones, mostly from the Chicago Region, eloquently demonstrate the pleasure and satisfaction that may be derived from a hobby of this kind.

During August and September two of the lobby cases were devoted to hay fever, an exhibit which proved to be one of the most popular of the series of temporary or seasonal displays initiated a year ago. Most of the material was supplied through the kindness of O. C. Durham, chief botanist of the Abbott Laboratories, who also assisted Mr. Necker in planning the exhibit.

The cases contained hay fever weeds from the herbarium of Anna Pedersen Kummer, samples of pollen, instruments and statistics for measuring and studying pollens, and several remedies and would-be remedies. To many the most interesting part of the exhibit was a chart showing the day by day changes in the pollen count in Chicago. These were superimposed daily on a graph of last year's counts and the eleven year average for Chicago. Maps and figures showed the relative incidence of hay fever throughout North America.

Under the direction of Earl G. Wright work has progressed on the new series of exhibits depicting the ecological succession from the lake shore of the Indiana Dunes to the climax forest. During the summer months materials were collected and photographs were made for backgrounds. Plaster casts and lead molds were made for reproducing leaves in celluloid. A new air brush compressor facilitates painting the reproductions and recent changes in dark room equipment provide more efficient means for handling the large photographic backgrounds now in preparation.

The reorganization of the synoptic series of animal groups on the third

floor of the Museum is being brought to completion by Donald C. Lowrie who is also assisting Earl and Thurston Wright in the planning and preparation of the dunes series. In connection with his studies of the spiders of the Chicago Region, Mr. Lowrie has given considerable attention to the ecology of the dunes.

Museum Visitors

Among the professional scientists who have visited the Museum recently were Mr. and Mrs. Robert A. Terry of Boquete, Panama. Mrs. Terry, formerly assistant curator of ornithology at the California Academy of Sciences, was known professionally as Mary E. Davidson. Other distinguished visitors were Alfred M. Bailey, Director, Colorado Museum of Natural History, Denver; Herbert L. Stoddard, Thomasville, Georgia; Dr. P. A. Davies, University of Louisville, Louisville, Kentucky; Dr. and Mrs. W. B. Wilson, Ottawa University, Ottawa, Kansas; and Dr. Lawrence E. Hicks, Ohio State University, Columbus.

The Library

Many additions have been made to the library since the last number of the *NATURALIST* went to press. Among the most noteworthy are: a complete set of *Annals of the Carnegie Museum*; a large series of Smithsonian Institution publications from Anna Pedersen Kummer of Waller High School; and a set of publications on the Alan Hancock Expedition from the University of Southern California.

Because of limitations of space in the room housing the research library, all general serials have been moved upstairs to the lecture hall where bookcases have been placed along the east and west walls.

The most urgent needs for library expansion are funds for binding and for the purchase of important reference books and monographs needed for the work of the technical staff.

H. S. Henschen Now Treasurer

Henry S. Henschen was elected Treasurer of The Chicago Academy of Sciences, to fill the unexpired term of the late Austin J. Lindstrom, at a meeting of the Board of Trustees on August 1, 1940.

Mr. Henschen has been a member of the Academy for many years and a trustee since 1910. He was Treasurer of the Academy from 1910 to 1921. A well known figure in Chicago banking circles, he was Cashier and Vice-President of the State Bank of Chicago from 1908 to 1920, President of the Congress Trust and Savings Bank from 1920 to 1930, and President of the Chicago Bank of Commerce from 1930 until his retirement in 1932. He was honored by the Swedish government, being made a Knight of the Royal Order of Vasa and a Knight of the Royal Order of the North Star. Mr.



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Henschen has loyally served the Academy as a trustee and it is a pleasure to announce his election as Treasurer.



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New Members of the Academy Staff

MISS JANET SIBLEY, Secretary to the Director, joined the staff of the Academy in July. Her home has been in Chicago since early childhood. She attended the University of Chicago High School and the Faulkner School, and was graduated from Wheaton College, Norton, Massachusetts, where she majored in modern languages and literature. She succeeds Elizabeth Lane Conley who resigned last June.

Dr. and Mrs. Henry Q. Conley announce the birth of a son, Henry Quigley, Junior, August 28, 1940.

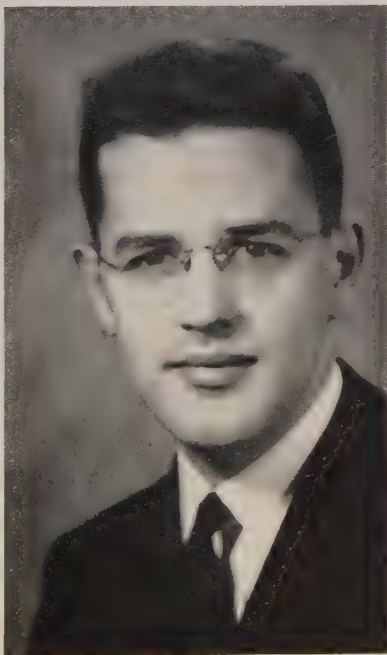


DONALD M. HATFIELD, Curator of Mammals, came to the Academy in September from the University of Minnesota, where he had been an instructor since 1935. His academic training included a year at Carleton College, six years at the University of California where he received the B. A. and M. A. degrees. While teaching at Minnesota he completed his work for the doctorate and was awarded his Ph. D. in June 1939. During his studies at California, he worked in the Museum of Vertebrate Zoology and, from April to September, 1935, he was a Junior Biologist with the U. S. Bureau of Fisheries.

Since 1934, Dr. Hatfield has published seventeen papers on various phases of mammalogy. He is a member of the Society of Sigma Xi, Phi Sigma, American Society of Mammalogists, Cooper Ornithological Club, and the Wildlife Society.

ELIOT C. WILLIAMS, JR., appointed Assistant to the Director of the Academy in early October, received the Ph. D. degree from Northwestern University last June. He is a native of Chicago and a graduate of Senn High School. From 1930 to 1933 he attended Northwestern University, and after a year of work in the city resumed his studies at the Central Y. M. C. A. College from which he was graduated in 1935. During the following year he was an instructor in zoology at the Y. M. C. A. College. Since 1936 he has been associated with the zoology department of Northwestern University as a graduate assistant, University Fellow, and instructor.

Ecology is the specific field of zoology in which Dr. Williams is interested. He was a member of the Northwestern University expedition to Panama in 1938. He is a member of the Society of Sigma Xi, American Association for the Advancement of Science, Ecological Society of America, and American Microscopical Society.



Recreation Conference

The Sixth Annual City-wide Recreation Conference was held at the Sherman Hotel on Friday, November 8, 1940. Sponsored by the Chicago Recreation Commission, it brought together a great many agencies concerned with all phases of recreation in the Chicago Area. In several concurrent sessions during the day, various aspects of the recreation problem were discussed, exhibits graphically presented the work of a number of organizations, and many types of activities were dramatized.

The theme of the conference was "Recreation and Preparedness." The most important single trend in all of the discussions was that in times of emergency such as we are now experiencing it is more than ever necessary to maintain and expand all possible facilities for the intelligent use of leisure time. It is entirely possible that under the misconception of emergency conditions attempts might be made to curtail the work of museums, forest preserves, park systems and other similar institutions at a time when they are really needed more than ever before.

One of the afternoon sessions was an "Information Please" program on Nature as a Resource in a Time of Emergency. Dr. Gloyd and Dr. Williams of the Academy were members of the board of experts which included representatives from other Chicago museums, the Lincoln Park Zoo, and the Cook County Forest Preserves. The questions used on this program were all pertinent to the subject of how museums, zoos, and forest preserves are of service to the community. It was pointed out that in most cases the wealth of opportunity afforded by these organizations is in no way used to the fullest extent possible.

The climax of the conference was the banquet in the Grand Ballroom of the Hotel Sherman. The Honorable Edward J. Kelly spoke on Recreation

in Chicago, and the principal speaker of the evening was Dr. Malcolm Shaw MacLean, President of Hampton Institute, whose address was entitled "Recreation and Preparedness."

Scientific Meetings

Dr. H. K. Gloyd and W. L. Necker attended the annual meeting of the American Society of Ichthyologists and Herpetologists at the Royal Ontario Museum of Zoology, Toronto, September 2-4, and Earl G. Wright attended the meeting of the Wilson Ornithological Club at the University of Minnesota Museum of Natural History, Minneapolis, November 21-24. Motion pictures from the Offield-Beaty Arizona expedition were shown on both programs and Mr. Wright exhibited some of his paintings of birds, both in water color and oil, at Minneapolis. Mr. Wright was elected Vice-President of the Inland Bird-Banding Association which held a business session in connection with the meeting of the Wilson Club.

Dr. V. O. Graham, Secretary, and Dr. H. K. Gloyd, Director, represented the Academy at the dedication of the new Natural Resources Building on the campus of the University of Illinois at Urbana, November 15. The new building houses the State Natural History and Geological Surveys.

Amateur Herpetologists Group

Walter Stelle, one of the members of the Amateur Herpetologists Group, on several occasions during the past summer assisted Mr. Necker in preserving and cataloging specimens. His service has been very helpful to the Academy, and it is thought that he also has profited by this contact with museum work.

Loren J. Stern, another member of the group, brought back a considerable number of specimens from Wooster Lake where he spent most of the summer.



ANIMALS IN ACTION

By Gayle Pickwell

Whittlesey House, McGraw-Hill Book Company, Inc., New York, 1940. xii—190 pages, 68 illustrations. Quarto. \$4.00.

Dr. Pickwell has again combined his talents as photographer and naturalist to present us a picture book—but no ordinary picture book, this. The 68 full-page photographs scattered through the text seem calculated not to please the eye but to force the reader to *think* (a rather startling innovation among “nature books”!). In most instances they succeed admirably, though a few, such as those of the ground squirrel and chickaree, are run-of-the-mill. The best of the lot, in the reviewer’s opinion, are those showing the life history of the monarch butterfly and the series on animals as parents.

The text, as the author states in the preface, is concerned chiefly with “. . . the activities that animals present in living.” As such, it can present but the sketchiest outline of animal activity, even to the extent of becoming confusingly discontinuous in places. The ten chapters include discussions of animals at home, as parents, growing up, getting food, getting air, and moving. There are also excellent chapters on animal protection, animal kinds, and methods of study. For the photographer, there is a brief two-page discussion of some of the technique used in obtaining the excellent photographs. One suspects that the chief requisite is patience!

As in his earlier books *Weather*, *Deserts*, and *Birds*, Dr. Pickwell

demonstrates here an outstanding ability to phrase his text clearly and concisely while retaining sufficient simplicity of style to reach even the ten-year-old.

—Donald M. Hatfield

THE GOLDEN THROG. A book about bees.

By Edwin Way Teale

Dodd, Mead and Company, New York, 1940, 298 pages, bibliography and index. \$3.00.

The story of the only domesticated insect, the honeybee, has been told many times—by Fabre, Maeterlinck, von Frisch, Root, and others. Mr. Teale, known for his photographic successes in *Grassroot Jungles*, tells the story of bees in pictures as well as in prose. Eighty-five photographs, taken by the author, popularize bees in a new way. Beginning with the near relatives and evolutionary history of the honeybee, Mr. Teale takes the reader through all phases of their anatomy, physiology, behavior, and life history. The means of protecting the colony, man’s uses for honey, and bees in history are only a few of the many facts treated in an instructive manner. The fascinating honey dance of the returning worker telling of the amount of honey found and the need for helpers; and the mysterious effects of feeding royal jelly to the larvae to develop queens, who otherwise would have been only workers, are graphically described. From beginning to end, by the pictures and text, the reader will be enthralled.

—D. C. Lowrie

TEXAS BIRD ADVENTURES IN THE CHISOS MOUNTAINS AND ON THE NORTHERN PLAINS

By Herbert Brandt

The Bird Research Foundation, Cleveland,
Ohio, 1940, xi, 192 pages, 17 illustrations.
\$5.00.

Until recently the Big Bend region of western Texas, "one of the last frontiers of the old west," was distinctly off the beaten path for the naturalist. A relatively small number of zoologists have visited it during the last fifteen years and few technical papers on its fauna have appeared. With the announcement of a plan for an international park to include large areas on both sides of the Rio Grande, interest in the Big Bend has sharply increased. Mr. Brandt's book, the first non-technical account of the bird life of the Chisos Mountains, is timely and it doubtless will be read by an increasing number of bird students, both professional and amateur.

The first of the sixteen chapters describes the author's journey by automobile from Cleveland to Marathon, Texas; the next nine chapters recount his adventures while getting acquainted with the Chisos Mountain region and his observations of the bird life, including the finding of a new nuthatch and a new vireo; and the last six chapters describe his experiences, chiefly with birds, in the oil and cattle country of northern Texas while visiting the Waggoner Ranch near Vernon. There is much of interest and value to bird students in these pages. The book follows a narrative style throughout but the index facilitates quick reference to notes on individual species.

Eight half-tone reproductions of bird portraits in water colors and two pen and ink drawings by George Miksch Sutton, and seven interesting photographs, add to the charm and value of the book.

The fastidious reader will find the author's highly individual style rather rough going in places, and the reviewer

would like the book better had the first chapter been omitted. Nevertheless, this book should be "on the list" of those who wish to become familiar with the avifauna of the Big Bend of the Rio Grande.

—H. K. GLOYD

CHINA'S ANIMAL FRONTIER

By Clifford Pope

Viking Press, 1940, 192 pages, illustrated
with photographs by the author. \$2.50.

This book covers a little known phase of the American Museum's work in China. In the words of the author, "The paleontology, or fossil collecting, met with such astonishing success in Mongolia that it eclipsed everything else and received all the publicity." Mr. Pope, at twenty-one, was the leader of a party in the Roy Chapman Andrews Third Asiatic Expedition. His collecting was mainly confined to reptiles, amphibians, and mammals. He writes entertainingly of various experiences in the field, giving a good cross section of the problems involved in the collection of each particular kind of animal.

Mr. Pope's treatment is more than a story of a collecting trip. He tells of the life of a people, not from the point of view of a tourist or casual visitor, but with the keen insight of a man who has really lived in a foreign land. He spent four years in China, most of the time the only white man in the collecting party. Various phases of life in China are portrayed in such a manner that one feels that he is really breaking through the shell of the "mysterious" East.

The style has been adapted for junior readers, but it is so well done and contains so much interesting material that anyone who likes travel and exploration, regardless of age, will find it profitable reading. The photographs are good and have been carefully chosen to illustrate the several facets of well balanced narration.

—ELIOT C. WILLIAMS, JR.

THE NATURALISTS CALENDAR OF EVENTS

- | | | | |
|-----------|---|---------|---|
| Nov. 24 | Chicago Academy of Sciences, public lecture, <i>Land Classification in the United States</i> , Dr. G. Donald Hudson, Academy Auditorium, 3:00 P. M. | Dec. 6 | Illinois Audubon Society, public lecture, <i>A Naturalist in the Rockies</i> , Dan McCowan, Auditorium, Chicago Academy of Sciences, 8:00 P. M. |
| Nov. 24 | Prairie Club walk from Justice Park to Sag Bridge, 10 to 12 miles. | Dec. 7 | Marquette Geologists Association, Chicago Academy of Sciences, 8:00 P. M. |
| Nov. 26 | Geographic Society, illustrated lecture, <i>Brazil Today</i> , Julien Bryan, Orchestra Hall, 8:15 P. M. | Dec. 7 | Prairie Club walk, La Grange to Westchester, 6 to 7 miles. |
| Nov. 29 | Geographic Society, illustrated lecture, <i>Black Civilization in Australia</i> , W. Lloyd Warner, Goodman Theatre, 8:15 P. M. | Dec. 8 | Chicago Academy of Sciences, public lecture, <i>Of Termites and Men</i> , Dr. Alfred E. Emerson, Museum Auditorium, 3:00 P. M. |
| Nov. 30 | Field Museum, free motion pictures for children, <i>Our National and State Parks</i> , 10:00 and 11:00 A. M. | Dec. 10 | Amateur Herpetologists' Group, Chicago Academy of Sciences, 7:30 P. M. |
| Nov. 30 | Field Museum, public lecture, <i>If Marco Polo Had a Camera</i> , Harrison Forman, 2:30 P. M. | Dec. 12 | Men's Garden Club of the Chicago Region, Breevort Hotel, 12:00 noon. |
| Nov. 30 | Prairie Club, Palos Park, leave 1:35, return 9:00 P. M. | Dec. 15 | Adler Planetarium, public to |
| Dec. 1 to | Adler Planetarium, <i>Objects of Special Interest in the Sky</i> , public lecture. | Dec. 31 | <i>Heavens</i> . |
| Dec. 15 | | Dec. 15 | Chicago Academy of Sciences, public lecture, <i>Invertebrates of the Arid Southwest</i> , Donald C. Lowrie, Museum Auditorium, 3:00 P. M. |
| Dec. 1 | Chicago Academy of Sciences, public lecture, <i>Reptiles of the Arid Southwest</i> , Dr. Howard K. Gloyd, Museum Auditorium, 3:00 P. M. | Dec. 18 | Chicago Aquarium Society, Y. M. C. A., 19 South La Salle Street, 6:30 P. M. |
| Dec. 1 | Prairie Club walk, Skokie Lagoons and Playfield, 5 to 6 miles. | Dec. 20 | State Microscopical Society, Chicago Academy of Sciences, 8:00 P. M. |
| | | Dec. 27 | Mid-West Horticultural Society, Christmas program, Administration Building Garfield Park, 8:00 P. M. |

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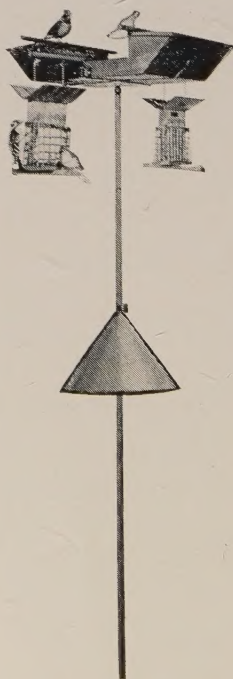


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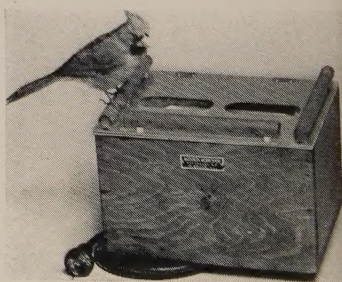


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5. Fluorescence of Minerals—Slawson. 13 pages, color plate. Price \$0.35
17. Liverworts of Southern Michigan—Steere. 97 pages, 22 plates. Price, Paper \$0.50; Cloth \$1.00
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9. Pictorial Guide to the Families of Birds—Boardman and Barto. 52 pages. Price \$0.50

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